CHAPTER 1

An Overview of Cisco IP Communicator

Cisco IP Communicator is a software-based application that allows users to place and receive phone calls using their personal computers. Cisco IP Communicator depends upon the Cisco CallManager call processing system to provide telephony features and Voice-over-IP capabilities.

This interaction with Cisco CallManager means that Cisco IP Communicator can provide the same functionality as a full-featured Cisco IP Phone, while providing the portability of a desktop application. Additionally, it means that you can administer Cisco IP Communicator as a phone device via the Cisco CallManager Administration web application.

Note Depending on context, this Guide refers to Cisco IP Communicator as a *phone*, *device*, *application*, or *interface*.

This chapter includes the following topics:

- Cisco IP Communicator at a Glance, page 1-2
- Supported Networking Protocols, page 1-7
- Supported Audio Formats, page 1-9
- How Cisco IP Communicator Interacts with Cisco CallManager, page 1-9
- Understanding QoS Modifications, page 1-12
- Using Cisco IP Communicator in Other Languages, page 1-13

Cisco IP Communicator at a Glance

Figure 1-1 shows the main components of the Cisco IP Communicator interface with the default skin selected. An alternate skin, accessible from the right-click menu, presents the same icons and functionality in a different interface (**right-click > Skins > Mercurio.xml** or **Default.xml**).

For details about how to use the Cisco IP Communicator interface, refer to the *Cisco IP Communicator User Guide*.

Figure 1-1 Components of the Cisco IP Communicator interface using the default skin

1	Phone screen	Displays softkey labels, call status, feature menus, and so on.
2	Minimize and close icons	Allows user to hide or quit the application.
3	Line buttons and speed dial buttons	Each opens/closes a line or speed dials a number. Buttons illuminate to indicate line status as follows: • Green, steady—Active call on this line (off-hook) • Green, blinking—Call on hold on this line • Orange, steady—Outgoing call ringing on this line • Orange, blinking—Incoming call ringing on this line • Red—Shared line, currently in use • No color—No call activity (on-hook) The template that you assign to a device determines how many of these buttons a user can convert to speed dial buttons. See the "Modifying Phone Button Templates" section on page 5-15.
4	Messages button	Typically auto-dials a voice message service, if configured.
5	Directories button	Opens/closes the Directories menu. Allows user to view and dial from call logs and a corporate directory. Users can also access corporate directories using Quick Search (**Alt + K** or **right-click > Quick Search**), if configured.
6	Help button	Activates the online Help menu.
7	Settings button	Opens/closes the Settings menu. Allows user to control phone screen appearance and ring sounds. Note that users cannot access Settings if you have disabled access from the Cisco CallManager Phone Configuration page. For more information, see the "Disabling Local Settings Access" section on page 5-18.
8	Services Button	Opens/closes the Services menu.
9	Volume button	Controls audio mode volume and other settings.

10	Speaker button	Toggles speakerphone mode on or off.
11	Mute button	Toggles the Mute feature on or off.
12	Headset button	Toggles headset mode on or off.
13	Navigation button	Allows user to scroll through menus and highlight items. Alternately, use the computer keyboard. The Navigation button is not available on the optional skin (Mercurio.xml).
14	Keypad	Allows user to enter numbers and letters, and choose menu items. Alternately, use the computer keyboard. A keypad is not available on the optional skin (Mercurio.xml).
15	Softkey buttons	Activates a softkey function. Alternately, click softkey labels instead of buttons. Note that softkey buttons look slightly different on the optional skin (Mercurio.xml).
16	Voice message and ring indicator	Indicates an incoming call and new voice message. On the optional skin (Mercurio.xml), the message waiting indicator is the Cisco IP Communicator icon in the upper left corner of the interface.

Related Topics

- Right-Click Menu Items, page 1-5
- Keyboard Shortcuts, page 1-6
- Installation Prerequisites, page 2-2
- Configuring the Application, page 4-1
- Modifying Phone Button Templates, page 5-15

Right-Click Menu Items

Users can right-click on any part of the Cisco IP Communicator interface to access the right-click menu. Table 1-1 describes the contents of the menu.

Table 1-1 Overview of right-click menu items

Item	Description
Skins	Users can choose the look of the interface from available skins (Default.xml or Mercurio.xml).
Screen Only	Toggles the phone image between screen-only view and full view.
Always on top	Toggles this feature on and off.
Audio Tuning Wizard	Launches the Audio Tuning Wizard, which helps users select and tune audio devices. See the "Selecting and Tuning Audio Devices" section on page 4-6 and the *Cisco IP Communicator User Guide*.
Quick Search	Opens the Quick Search dialog box, which allows users to search one or more directories with a single search command. Set up Quick Search using the Directory Wizard. See the "Configuring Corporate and Personal Directories" section on page 5-5.
Cisco User Options	Opens the Cisco IP Phone User Options web page where users can configure features, settings, and IP phone services, including a Personal Address Book and speed dial buttons.
Preferences...	Opens the Preferences dialog box, which includes User, Network, Audio, and Directories windows. Users can configure network and device settings, including those required after installation. See the "Configuring the Application" section on page 4-1 and the *Cisco IP Communicator User Guide*.
Help	Provides a link to online help and the *User Guide* in PDF format.
About Cisco IP Communicator	Displays Cisco IP Communicator software version information.
Exit	Closes the Cisco IP Communicator interface.

Related Topics

- Cisco IP Communicator at a Glance, page 1-2
- Keyboard Shortcuts, page 1-6

- Configuring the Application, page 4-1
- Viewing Operational Information Locally on the Cisco IP Communicator Interface, page 7-3

Keyboard Shortcuts

Cisco IP Communicator supports the keyboard shortcuts shown in the table below.

Keyboard shortcut	Function
Ctrl + D	Opens/closes the Directories menu
Ctrl + S	Opens/closes the Settings menu
Ctrl + V	Opens/closes the Services menu
Ctrl + M	Opens the voice message system
Ctrl + I	Opens/closes the online help system
Ctrl + H	Toggles headset mode on/off
Ctrl + P	Toggles speakerphone mode on/off
Ctrl + T	Toggles the Mute feature on/off
Ctrl + (number keys 1 through 8)	Opens/closes line buttons or speed dial buttons 1 - 8
Alt + S	Opens the Preferences dialog box
Alt + K	Opens the Quick Search directory feature
Alt + X	Exits Cisco IP Communicator
Alt + F4	Closes Cisco IP Communicator
Page up	Increases volume for the current audio mode
Page down	Decreases volume for the current audio mode
F2 - F6	Activates softkeys 1 - 5
/ (with NumLk function enabled)	Activates the # key

Related Topics

- Cisco IP Communicator at a Glance, page 1-2
- Right-Click Menu Items, page 1-5

Supported Networking Protocols

Cisco IP Communicator supports several industry-standard and Cisco networking protocols required for voice communication, as described in Table 1-2.

Table 1-2 Supported networking protocols for Cisco IP Communicator

Networking Protocol	Purpose	Usage Notes
Cisco Discovery Protocol (CDP)	CDP is a device-discovery protocol that runs on all Cisco-manufactured equipment. Using CDP, a device can advertise its existence to other devices and receive information about other devices in the network.	Cisco IP Communicator uses CDP to identify itself to Cisco Emergency Responder (CER), an application which provides emergency 911 dialing support.
Dynamic Host Configuration Protocol (DHCP)	DHCP dynamically allocates and assigns an IP address to network devices. DHCP enables you to connect an IP device into the network and have the device become operational without you needing to manually assign a TFTP server or to configure additional network parameters.	Cisco recommends that you use DHCP custom option 150. With this method, you configure the TFTP server IP address as the option value. For additional supported DCHP configurations, see *Cisco CallManager System Guide*.
Internet Protocol (IP)	IP is a messaging protocol that addresses and sends packets across the network.	To communicate using IP, network devices must have an assigned IP address, subnet, and gateway.

Table 1-2 Supported networking protocols for Cisco IP Communicator

Networking Protocol	Purpose	Usage Notes
Real-Time Transport (RTP)	RTP is a standard for using UDP to transport real-time data, such as interactive voice and video, over data networks.	Cisco IP Communicator uses the RTP protocol to send and receive real-time voice traffic from other phone devices and gateways.
Transmission Control Protocol (TCP)	TCP is a connection-oriented transport protocol in the IP family.	Cisco IP Communicator uses TCP to connect to Cisco CallManager.
Trivial File Transfer Protocol (TFTP)	TFTP allows you to transfer files over the network.	Cisco IP Communicator uses TFTP to obtain the configuration file, LDAP Directories configuration, and dialing rules. TFTP requires a TFTP server in your network, which can be automatically identified from the DHCP server. If more than one TFTP server is running in your network, you must manually assign a TFTP server to each application locally.
HyperText Transfer Protocol (HTTP)	HTTP uses TCP to transfer web content over the Internet.	Cisco IP Communicator users HTTP to obtain the configuration file, LDAP Directories configuration, dialing rules, and XML services.
User Datagram Protocol (UDP)	UDP is a connectionless messaging protocol in the IP family used for delivery of data packets.	Cisco IP Communicator receives and processes UDP messages.
Lightweight Directory Access Protocol (LDAP)	LDAP is a protocol for accessing directories.	Cisco IP Communicator can use LDAP to search for names and phone numbers.
eXtensible Markup Language (XML)	XML is a markup language for documents containing structured information.	Cisco IP Communicator can access Cisco XML web services.

Related Topics

- Supported Audio Formats, page 1-9
- How Cisco IP Communicator Interacts with Cisco CallManager, page 1-9
- Installation Prerequisites, page 2-2
- Understanding the Startup Process, page 1-10

Supported Audio Formats

Cisco IP Communicator supports the following audio formats:

- G.711*a*
- G.711*u*
- G.729
- G.729a
- Uncompressed wideband (16bits, 16kHz)

Related Topics

- Supported Networking Protocols, page 1-7
- How Cisco IP Communicator Interacts with Cisco CallManager, page 1-9
- Installation Prerequisites, page 2-2
- Specifying Low-Bandwidth for Remote Use, page 4-15

How Cisco IP Communicator Interacts with Cisco CallManager

Cisco IP Communicator is a software application that enables you to communicate using voice over a data network. To provide this capability, Cisco IP Communicator depends upon Cisco CallManager, an open and industry-standard call processing system. Cisco CallManager software sets up and tears down calls between phone devices, integrating traditional PBX

functionality with the corporate IP network. Cisco CallManager manages all components of the IP telephony system—the phone devices, access gateways, and the resources necessary for such features as call conferencing and route planning.

You can register Cisco IP Communicator with Cisco CallManager system versions 3.3(3) SR 3 or later. As you would do with other Cisco IP Phones that rely on Cisco CallManager, you must configure and manage Cisco IP Communicator as a network device via the Cisco CallManager Administration web application.

You can get context-sensitive help for any page in the Cisco CallManager Administration web application by choosing **Help > For this page** from the main menu bar. Additionally, some panels within a page display an "i" button that you can click to access context-sensitive help for that panel.

For complete instructions and conceptual information about using Cisco CallManager, refer to *Cisco CallManager Administration Guide* and *Cisco CallManager System Guide*. You can access these and other Cisco CallManager documents from the online help window or from Cisco.com:

http://www.cisco.com/univercd/cc/td/doc/product/voice/index.htm

Related Topics

- Understanding QoS Modifications, page 1-12
- Understanding the Startup Process, page 1-10
- Installation Prerequisites, page 2-2
- Telephony Features Available for Cisco IP Communicator, page 5-2

Understanding the Startup Process

The sections below describe how Cisco IP Communicator interacts with the network at startup.

Step One—Locating the Configuration Server

Upon startup, Cisco IP Communicator always attempts to use DHCP to locate its Trivial File Transfer Protocol (TFTP) server. Like other phones, Cisco IP Communicator can use TFTP to retrieve files from the server.

Additionally, it can use HTTP to retrieve software updates, thereby accelerating file transfer for remote users. (See the "Running the Cisco IP Communicator Administration Tool" section on page 2-14 for instructions.)

If you do not use DHCP on your network to identify TFTP servers, or if you want the device to use an alternate TFTP server, then you need to manually configure your TFTP server from the Cisco IP Communicator interface—or instruct users to do this task. (See the "Specifying a TFTP Server" section on page 4-8.)

Step Two—Requesting Configuration Files

Configuration files (.cnf.xml) reside on the TFTP server and define parameters for connecting to Cisco CallManager. In general, any time you make a change in Cisco CallManager that requires a device to be reset, a change has been made to the device's configuration file.

- If you have enabled auto-registration in Cisco CallManager, Cisco IP Communicator accesses a default configuration file (xmldefault.cnf.xml) from the TFTP server.
- Otherwise, Cisco IP Communicator accesses a .cnf.xml file corresponding to its device name.

Step Three—Updating Software

If you have opted to use AutoUpdate, the .cnf.xml file also contains the information that tells Cisco IP Communicator which software version it should be running. If this software version differs from the one currently in use, Cisco IP Communicator contacts the TFTP server to request the new software file. To make this request, Cisco IP Communicator first tries to use HTTP. If you have not enabled HTTP access, Cisco IP Communicator will use TFTP.

Step Four—Contacting Cisco CallManager

After obtaining the configuration file from the TFTP server, Cisco IP Communicator attempts to make a TCP connection to the highest priority Cisco CallManager on the list.

- If the device was added to the database individually, using Cisco CallManager Administration, or in bulk, using the Bulk Administration Tool (BAT), Cisco CallManager identifies the device. (This is only true if you are not using BAT in conjunction with the Tool for Auto-Registered Phones Support, otherwise known as TAPS).
- Otherwise, the device attempts to register itself in the Cisco CallManager database (when auto-registration is turned on in Cisco CallManager).

Related Topics

- Adding Devices to the Cisco CallManager Database, page 2-10
- Specifying a TFTP Server, page 4-8
- Configuring Features and Services, page 5-1
- Updating the Application, page 3-7
- Resolving Startup Problems, page 8-3

Understanding QoS Modifications

Voice quality can be compromised on an IP device by data traffic. Because Cisco IP Communicator is a software-based phone instead of a hardware phone, you cannot solve this problem by isolating Voice-over-IP traffic to an auxiliary VLAN. Instead, you must modify Quality of Service (QoS) parameters in the network so that voice data traffic is prioritized over generic data traffic.

For more information about configuring QoS in your network, refer to the *Cisco AVVID Network Infrastructure Enterprise Quality of Service Design* guide and other network design guides, accessible from this index:

http://www.cisco.com/warp/public/779/largeent/it/ese/srnd.html

Related Topics

- How Cisco IP Communicator Interacts with Cisco CallManager, page 1-9
- Selecting an Audio Port Range, page 4-16
- Troubleshooting Cisco IP Communicator, page 8-1

Using Cisco IP Communicator in Other Languages

Cisco IP Communicator is available in languages besides English. If you are using Cisco IP Communicator in a locale other than English, you should install the Cisco IP Telephony Locale Installer on every Cisco CallManager server in the cluster. Doing so ensures that you have the latest translated text, user and network locales, and country-specific phone tones available.

For more information, refer to *Using the Cisco IP Telephony Locale Installer*, located here:

http://www.cisco.com/univercd/cc/td/doc/product/voice/

Related Topics

- How Cisco IP Communicator Interacts with Cisco CallManager, page 1-9